

Release notes for ENDF/B Development n-037_Rb_085
evaluation

ENDF
B-VII.dev

April 26, 2017

- checkr Warnings:

1. A previous error halted parsing of the current section
MAT=3725, MF= 1, MT=451 (1): Parsing stopped

```
ERROR(S) FOUND IN MAT=3725, MF= 1, MT=451
SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER      258 TO      304
```

- checkr Errors:

1. A variable is outside the allowed ENDF range
MAT=3725, MF= 1, MT=451 (0): Variable range

```
ERROR(S) FOUND IN MAT=3725, MF= 1, MT=451
MOD =      1 OUT OF RANGE      0 -      0      RECORD NUMBER      258
```

2. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 2, MT=151 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=3725, MF= 2, MT=151
SECTION 2/151 NOT IN DIRECTORY      RECORD NUMBER      306
```

3. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT= 1 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=3725, MF= 3, MT= 1
SECTION 3/ 1 NOT IN DIRECTORY      RECORD NUMBER      766
```

4. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT= 2 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=3725, MF= 3, MT= 2
SECTION 3/ 2 NOT IN DIRECTORY      RECORD NUMBER      792
```

5. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT= 4 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=3725, MF= 3, MT= 4
SECTION 3/ 4 NOT IN DIRECTORY      RECORD NUMBER      818
```

6. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT= 16 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=3725, MF= 3, MT= 16
SECTION 3/ 16 NOT IN DIRECTORY      RECORD NUMBER      834
```

7. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT= 17 (0): Directory (b)

ERROR(S) FOUND IN MAT=3725, MF= 3, MT= 17
SECTION 3/ 17 NOT IN DIRECTORY RECORD NUMBER 844

8. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT= 22 (0): Directory (b)

ERROR(S) FOUND IN MAT=3725, MF= 3, MT= 22
SECTION 3/ 22 NOT IN DIRECTORY RECORD NUMBER 849

9. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT= 28 (0): Directory (b)

ERROR(S) FOUND IN MAT=3725, MF= 3, MT= 28
SECTION 3/ 28 NOT IN DIRECTORY RECORD NUMBER 861

10. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT= 32 (0): Directory (b)

ERROR(S) FOUND IN MAT=3725, MF= 3, MT= 32
SECTION 3/ 32 NOT IN DIRECTORY RECORD NUMBER 873

11. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT= 51 (0): Directory (b)

ERROR(S) FOUND IN MAT=3725, MF= 3, MT= 51
SECTION 3/ 51 NOT IN DIRECTORY RECORD NUMBER 880

12. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT= 52 (0): Directory (b)

ERROR(S) FOUND IN MAT=3725, MF= 3, MT= 52
SECTION 3/ 52 NOT IN DIRECTORY RECORD NUMBER 896

13. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT= 53 (0): Directory (b)

ERROR(S) FOUND IN MAT=3725, MF= 3, MT= 53
SECTION 3/ 53 NOT IN DIRECTORY RECORD NUMBER 911

14. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT= 54 (0): Directory (b)

ERROR(S) FOUND IN MAT=3725, MF= 3, MT= 54
SECTION 3/ 54 NOT IN DIRECTORY RECORD NUMBER 925

15. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT= 55 (0): Directory (b)

- | | | |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=3725, MF= 3, MT= 55 | RECORD NUMBER | 938 |
| SECTION 3/ 55 NOT IN DIRECTORY | | |
16. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT= 56 (0): Directory (b)
- | | | |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=3725, MF= 3, MT= 56 | RECORD NUMBER | 951 |
| SECTION 3/ 56 NOT IN DIRECTORY | | |
17. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT= 57 (0): Directory (b)
- | | | |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=3725, MF= 3, MT= 57 | RECORD NUMBER | 963 |
| SECTION 3/ 57 NOT IN DIRECTORY | | |
18. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT= 58 (0): Directory (b)
- | | | |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=3725, MF= 3, MT= 58 | RECORD NUMBER | 975 |
| SECTION 3/ 58 NOT IN DIRECTORY | | |
19. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT= 91 (0): Directory (b)
- | | | |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=3725, MF= 3, MT= 91 | RECORD NUMBER | 986 |
| SECTION 3/ 91 NOT IN DIRECTORY | | |
20. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT=102 (0): Directory (b)
- | | | |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=3725, MF= 3, MT=102 | RECORD NUMBER | 996 |
| SECTION 3/102 NOT IN DIRECTORY | | |
21. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT=103 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=3725, MF= 3, MT=103 | RECORD NUMBER | 1016 |
| SECTION 3/103 NOT IN DIRECTORY | | |
22. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT=104 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=3725, MF= 3, MT=104 | RECORD NUMBER | 1032 |
| SECTION 3/104 NOT IN DIRECTORY | | |
23. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT=105 (0): Directory (b)

- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=3725, MF= 3, MT=105 | |
| | SECTION 3/105 NOT IN DIRECTORY | RECORD NUMBER 1045 |
24. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT=106 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=3725, MF= 3, MT=106 | |
| | SECTION 3/106 NOT IN DIRECTORY | RECORD NUMBER 1056 |
25. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 3, MT=107 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=3725, MF= 3, MT=107 | |
| | SECTION 3/107 NOT IN DIRECTORY | RECORD NUMBER 1066 |
26. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 4, MT= 2 (0): Directory (b)
- | | | |
|--|--|--------------------|
| | ERROR(S) FOUND IN MAT=3725, MF= 4, MT= 2 | |
| | SECTION 4/ 2 NOT IN DIRECTORY | RECORD NUMBER 1083 |
27. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 4, MT= 16 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=3725, MF= 4, MT= 16 | |
| | SECTION 4/ 16 NOT IN DIRECTORY | RECORD NUMBER 1244 |
28. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 4, MT= 17 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=3725, MF= 4, MT= 17 | |
| | SECTION 4/ 17 NOT IN DIRECTORY | RECORD NUMBER 1255 |
29. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 4, MT= 22 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=3725, MF= 4, MT= 22 | |
| | SECTION 4/ 22 NOT IN DIRECTORY | RECORD NUMBER 1266 |
30. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 4, MT= 28 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=3725, MF= 4, MT= 28 | |
| | SECTION 4/ 28 NOT IN DIRECTORY | RECORD NUMBER 1277 |
31. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 4, MT= 32 (0): Directory (b)

- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=3725, MF= 4, MT= 32 | RECORD NUMBER | 1288 |
| SECTION 4/ 32 NOT IN DIRECTORY | | |
32. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 4, MT= 51 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=3725, MF= 4, MT= 51 | RECORD NUMBER | 1299 |
| SECTION 4/ 51 NOT IN DIRECTORY | | |
33. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 4, MT= 52 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=3725, MF= 4, MT= 52 | RECORD NUMBER | 1325 |
| SECTION 4/ 52 NOT IN DIRECTORY | | |
34. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 4, MT= 53 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=3725, MF= 4, MT= 53 | RECORD NUMBER | 1351 |
| SECTION 4/ 53 NOT IN DIRECTORY | | |
35. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 4, MT= 54 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=3725, MF= 4, MT= 54 | RECORD NUMBER | 1376 |
| SECTION 4/ 54 NOT IN DIRECTORY | | |
36. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 4, MT= 55 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=3725, MF= 4, MT= 55 | RECORD NUMBER | 1401 |
| SECTION 4/ 55 NOT IN DIRECTORY | | |
37. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 4, MT= 56 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=3725, MF= 4, MT= 56 | RECORD NUMBER | 1426 |
| SECTION 4/ 56 NOT IN DIRECTORY | | |
38. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 4, MT= 57 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=3725, MF= 4, MT= 57 | RECORD NUMBER | 1451 |
| SECTION 4/ 57 NOT IN DIRECTORY | | |
39. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 4, MT= 58 (0): Directory (b)

ERROR(S) FOUND IN MAT=3725, MF= 4, MT= 58
SECTION 4/ 58 NOT IN DIRECTORY RECORD NUMBER 1476

40. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 4, MT= 91 (0): Directory (b)

ERROR(S) FOUND IN MAT=3725, MF= 4, MT= 91
SECTION 4/ 91 NOT IN DIRECTORY RECORD NUMBER 1499

41. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 5, MT= 16 (0): Directory (b)

ERROR(S) FOUND IN MAT=3725, MF= 5, MT= 16
SECTION 5/ 16 NOT IN DIRECTORY RECORD NUMBER 1523

42. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 5, MT= 17 (0): Directory (b)

ERROR(S) FOUND IN MAT=3725, MF= 5, MT= 17
SECTION 5/ 17 NOT IN DIRECTORY RECORD NUMBER 1571

43. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 5, MT= 22 (0): Directory (b)

ERROR(S) FOUND IN MAT=3725, MF= 5, MT= 22
SECTION 5/ 22 NOT IN DIRECTORY RECORD NUMBER 1585

44. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 5, MT= 28 (0): Directory (b)

ERROR(S) FOUND IN MAT=3725, MF= 5, MT= 28
SECTION 5/ 28 NOT IN DIRECTORY RECORD NUMBER 1722

45. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 5, MT= 32 (0): Directory (b)

ERROR(S) FOUND IN MAT=3725, MF= 5, MT= 32
SECTION 5/ 32 NOT IN DIRECTORY RECORD NUMBER 1830

46. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=3725, MF= 5, MT= 91 (0): Directory (b)

ERROR(S) FOUND IN MAT=3725, MF= 5, MT= 91
SECTION 5/ 91 NOT IN DIRECTORY RECORD NUMBER 1866

- **psyche** Warnings:

1. Strength function in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 8.46800E+03. STRENGTH FUNCTION IS 1.00000E-04 / STRENGTH FUNCTION 1.00000E-04 / LIES OUTSIDE LIMITS 1.00000E-05 TO 1.00000E-04 (0): URR str. ftn.

```
FILE 2
SECTION 151
ENERGY = 8.46800E+03. STRENGTH FUNCTION IS 1.00000E-04
STRENGTH FUNCTION 1.00000E-04
LIES OUTSIDE LIMITS 1.00000E-05 TO 1.00000E-04
... [5 more lines]
```

2. Non-threshold reaction with Q value differing from PSYCHE's expectations
FILE 3 / SECTION 102 / THE CALCULATED Q 8.21569E+06 DISSAGREES WITH THE GIVEN Q 8.65029E+06 (0): Iffy Q

```
FILE 3
SECTION 102
THE CALCULATED Q 8.21569E+06 DISSAGREES WITH THE GIVEN Q 8.65029E+06
```

3. Non-threshold reaction with Q value differing from PSYCHE's expectations
FILE 3 / SECTION 107 / THE CALCULATED Q 8.12123E+05 DISSAGREES WITH THE GIVEN Q 9.93416E+05 (0): Iffy Q

```
FILE 3
SECTION 107
THE CALCULATED Q 8.12123E+05 DISSAGREES WITH THE GIVEN Q 9.93416E+05
```

- fudge-4.0 Warnings:

1. Missing a channel with a particular angular momenta combination
resonances / resolved (Error # 1): missingResonanceChannel

```
WARNING: Missing a channel with angular momenta combination L = 0, J = 1.0 and S = 1.0 for "capture"
WARNING: Missing a channel with angular momenta combination L = 1, J = 1.0 and S = 1.0 for "capture"
WARNING: Missing a channel with angular momenta combination L = 1, J = 2.0 and S = 1.0 for "capture"
WARNING: Missing a channel with angular momenta combination L = 1, J = 2.0 and S = 2.0 for "capture"
... plus 1 more instances of this message
```

2. Cross section does not match sum of linked reaction cross sections
crossSectionSum label 0: total (Error # 0): CS Sum.

```
WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.22%
```

3. Cross section does not match sum of linked reaction cross sections
crossSectionSum label 1: (z,n) (Error # 0): CS Sum.

```
WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.11%
```

- fudge-4.0 Errors:

1. The spin statistical weights are off, indicating missing channels
resonances / resolved / MultiLevel_BreitWigner (Error # 0): badSpinStatisticalWeights

```
WARNING: The spin statcal weights for L=1 sums to 2.0, but should sum to 3.0. You have too few channels for re
```


2. Calculated and tabulated Q values disagree.
reaction label 10: n[multiplicity:'2'] + Rb84 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -10447948.30255127 eV vs -1.04829e7 eV!
3. Calculated and tabulated Q values disagree.
reaction label 11: n[multiplicity:'3'] + Rb83 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -19194487.13679504 eV vs -1.9324e7 eV!
4. Calculated and tabulated Q values disagree.
reaction label 12: n + H1 + Kr84 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -6984636.976333618 eV vs -7020530. eV!
5. Calculated and tabulated Q values disagree.
reaction label 13: n + H2 + Kr83 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -15280669.9299469 eV vs -1.52338e7 eV!
6. Calculated and tabulated Q values disagree.
reaction label 14: Rb86 + gamma (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: 8691677.366149902 eV vs 8650290. eV!
7. Calculated and tabulated Q values disagree.
reaction label 15: n + He4 + Br81 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -6576733.944702148 eV vs -6604680. eV!
8. Calculated and tabulated Q values disagree.
reaction label 16: H1 + Kr85-s (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: 135956.6430206299 eV vs 95460. eV!
9. Calculated and tabulated Q values disagree.
reaction label 17: H2 + Kr84-s (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -4760070.875396729 eV vs -4710410. eV!
10. Calculated and tabulated Q values disagree.
reaction label 18: H3 + Kr83-s (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -9023436.989334106 eV vs -9048660. eV!
11. Calculated and tabulated Q values disagree.
reaction label 19: He3 + Br83-s (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -9977625.463592529 eV vs -9989620. eV!
12. Calculated and tabulated Q values disagree.
reaction label 20: He4 + Br82-s (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: 1016209.127960205 eV vs 993416. eV!

- njoy2012 Warnings:

1. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
group...compute self-shielded group-averaged cross-sections (0): GROUPR/conver (0)

```
---message from conver---cannot do complete particle production for mt= 16
only mf4/mf5 provided
```

2. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
group...compute self-shielded group-averaged cross-sections (1): GROUPR/conver (0)

```
---message from conver---cannot do complete particle production for mt= 17
only mf4/mf5 provided
```

3. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
group...compute self-shielded group-averaged cross-sections (2): GROUPR/conver (0)

```
---message from conver---cannot do complete particle production for mt= 22
only mf4/mf5 provided
```

4. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
group...compute self-shielded group-averaged cross-sections (3): GROUPR/conver (0)

```
---message from conver---cannot do complete particle production for mt= 28
only mf4/mf5 provided
```

5. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
group...compute self-shielded group-averaged cross-sections (4): GROUPR/conver (0)

```
---message from conver---cannot do complete particle production for mt= 32
only mf4/mf5 provided
```

6. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
group...compute self-shielded group-averaged cross-sections (5): GROUPR/conver (0)

```
---message from conver---cannot do complete particle production for mt= 91
only mf4/mf5 provided
```